UNITED STATES NAVAL OBSERVATORY

CIRCULAR NO. 79

U. S. Naval Observatory, Washington 25, D. C. July 12, 1957

POSITIONS, AREAS, AND COUNTS OF SUNSPOTS

JANUARY, 1957

By Winifred Sawtell Cameron

These results are based upon measurements made at the Naval Observatory on plates secured either there or at the Mt. Wilson Observatory. The symbols used for the entries in the successive columns are as follows:

U.T., the epoch of observation in Universal Time.
No., the identifying number of the group assigned by Mt. Wilson.
Δl, the heliographic difference in longitude from the central meridian, measured positive to the west.
φ, the heliographic latitude, measured positive to the north.
ρ, the heliocentric angular distance from the line joining the centers of the Earth and Sun.
A, the true area of the umbra plus penumbra, expressed in millionths of the visible hemisphere.
s, the number of spots.

An asterisk means that no Mt. Wilson number was assigned. Plates secured at the Naval Observatory are indicated by N, and those at Mt. Wilson by M. The plate quality, which follows, is indicated by:

1, Poor; 2, Fair; 3, Good; 4, Very Good; 5, Excellent.

The following five quantities are listed successively at the end of each day, and give for that day:

1. The total number of groups, g.
2. The longitude of the central meridian, L_0.
3. The latitude of the center of the disc, B_0.
4. The total value of A.
5. The total value of s.

The mean daily area and the mean relative sunspot number, $r=10g+s$ are given at the end of the month.

These results are a continuation of those published in the *Monthly Weather Review* from February 1, 1927 to December 31, 1947.

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U.T.	No.	Δl	φ	ρ	A	s
		°	°	°		
1,679	12066	−78	−12	78	97	1
N–2	12065	−70	+ 8	71	97	1
	12064	−67	−21	68	242	1
	12063	−50	−16	52	32	1
	12061	−28	+27	41	24	1
	12054	−22	+18	31	73	1
	12054	−21	+23	34	242	3
	12054	−18	+20	30	145	3
	12054	−16	+21	28	412	6
	12054	−16	+18	26	36	2
	12054	−13	+21	26	242	2
	12054	−11	+19	25	242	1
	12054	− 9	+22	26	533	1
	12054	− 8	+16	22	48	1
	12054	− 6	+18	23	36	1
	12051	− 6	−20	17	170	1
	12051	− 5	−21	18	36	1
	12051	+ 2	−21	17	73	1
	12059	+ 6	+31	34	24	1
	12059	+ 7	+33	36	16	1
	12059	+11	+32	36	48	1
	12059	+12	+32	36	24	1
	12059	+13	+29	35	97	2
	12059	+15	+29	36	61	2
	12050	+ 8	+26	31	12	1
	12050	+10	+24	29	36	1
	12050	+11	+25	31	48	1
	12046	+26	+36	46	73	1
	12046	+40	+36	54	533	1
	12058	+35	−12	36	32	1
	(11)	(286)	(−3)		3784	43
2,599	12066	−73	−13	73	194	1
N–2	12066	−63	−13	64	97	1
	12065	−56	+ 6	57	24	1
	12064	−55	−22	58	32	1
	12064	−53	−22	55	242	1
	12063	−36	−16	37	16	1
	12061	−20	+28	36	16	1
	12061	−17	+27	35	48	1
	12054	−11	+20	25	36	1
	12054	−10	+17	23	97	3
	12054	− 9	+23	27	97	2
	12054	− 6	+20	24	242	3
	12054	− 4	+21	24	339	4
	12054	− 4	+17	21	24	1
	12054	− 2	+18	21	97	2
	12054	+ 3	+20	23	970	8
	12054	+ 4	+16	20	97	2
	12051	+ 6	−21	18	97	3
	12051	+15	−22	24	73	2
	12059	+17	+33	39	24	1
	12059	+20	+32	39	61	2
	12059	+27	+28	41	121	2
	12050	+18	+25	34	24	1
	12050	+19	+24	34	36	1
	12050	+20	+26	35	48	1
	12050	+23	+25	36	16	1
	12050	+24	+23	35	32	1
	12046	+37	+36	52	24	1
	12046	+51	+36	62	485	1
	12058	+41	−13	42	16	1
	12058	+43	−13	44	16	1
	12058	+45	−11	45	12	1
	12058	+47	−11	47	48	1
	(11)	(274)	(−3)		3801	55
3,606	12068	−80	−24	80	970	3
N–2	12068	−75	−23	76	97	1
	12068	−70	−22	71	73	1
	12066	−66	−14	67	170	1
	12066	−59	−13	61	242	1
	12064	−43	−21	45	32	1
	12064	−41	−21	44	194	1
	12063	−28	−18	32	48	2
	12067	−15	−28	29	32	1
	12067	−15	−30	31	24	1
	12061	− 3	+26	30	48	1
	12069	− 2	−21	17	36	1
	12054	+ 4	+18	22	145	2
	12054	+ 4	+19	23	73	1
	12054	+ 5	+23	25	121	2
	12054	+ 8	+19	25	388	4
	12054	+ 8	+22	26	73	2
	12054	+ 8	+23	27	24	1
	12054	+10	+18	24	73	1
	12054	+11	+21	25	97	1
	12054	+15	+20	28	1261	4
	12054	+16	+17	26	170	2
	12051	+17	−20	24	16	1
	12051	+18	−21	25	85	2
	12051	+27	−21	33	48	1
	12050	+32	+25	42	16	2
	12050	+34	+26	44	36	1
	12050	+36	+23	44	16	1
	12050	+38	+22	44	32	1
	12059	+34	+30	46	24	1
	12059	+36	+32	49	121	2
	12059	+38	+30	49	121	3
	12059	+43	+28	51	121	2
	12046	+50	+36	62	48	1
	12046	+64	+36	70	436	1
	12058	+55	−13	56	24	1
	12058	+58	−10	59	48	1
	12058	+62	−10	62	48	1
	(13)	(261)	(−3)		5631	57
4,597	12068	−66	−24	68	145	3
N–2	12068	−65	−25	66	630	3
	12068	−60	−22	63	48	1
	12068	−57	−23	61	32	1
	12068	−54	−23	56	24	2
	12066	−57	−16	60	24	1
	12066	−52	−15	53	61	1
	12066	−51	−14	52	121	1
	12066	−46	−14	47	170	2
	12073	−48	+13	51	24	1
	12064	−28	−21	34	24	1
	12064	−27	−21	33	170	1
	12064	−22	−21	27	24	1
	12063	−15	−18	22	32	2

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U.T.	No.	Δl	φ	ρ	A	s
		°	°	°		
	12061	+ 9	+36	40	16	1
	12054	+14	+17	25	145	2
	12054	+15	+23	29	48	1
	12054	+16	+17	26	48	1
	12054	+17	+20	29	61	1
	12054	+21	+19	31	170	2
	12054	+22	+20	32	97	1
	12054	+23	+22	34	48	2
	12054	+24	+20	34	194	2
	12054	+26	+18	34	267	3
	12054	+27	+21	36	970	3
	12054	+29	+18	36	145	4
	12054	+30	+16	36	24	1
	12051	+33	−21	36	73	2
	12051	+43	−21	45	97	1
	12050	+44	+27	52	24	1
	12050	+45	+24	51	48	1
	12059	+47	+32	57	97	2
	12059	+50	+30	58	97	2
	12059	+51	+27	58	48	1
	12059	+54	+28	61	32	1
	12059	+55	+28	62	121	1
	12046	+61	+35	68	48	1
	12046	+78	+36	80	388	1
	12058	+72	−10	72	73	1
	(12)	(248)	(−3)		4908	60
5.799	12076	−56	−26	58	97	1
N–1	12076	−53	−24	55	48	1
	12075	−53	−15	54	48	2
	12075	−51	−14	52	121	3
	12075	−50	−16	52	73	1
	12068	−50	−23	53	194	3
	12068	−48	−24	51	485	3
	12074	−41	−20	44	24	1
	12074	−41	−22	44	32	1
	12074	−37	−22	41	73	1
	12074	−37	−20	41	97	1
	12066	−36	−15	36	73	2
	12066	−33	−14	34	48	1
	12066	−31	−14	33	218	2
	12065	−14	+ 3	16	32	1
	12065	−13	+ 3	15	48	2
	12064	−13	−21	21	24	1
	12064	−12	−21	20	194	1
	12072	+ 1	−18	15	16	1
	12072	+ 7	−17	16	24	1
	12072	+ 8	−16	15	32	1
	12069	+27	−24	34	12	1
	12054	+32	+16	37	145	2
	12054	+33	+17	38	16	1
	12054	+34	+16	39	73	3
	12054	+35	+16	40	121	2
	12054	+36	+18	42	73	1
	12054	+38	+17	44	436	2
	12054	+40	+18	45	121	2
	12054	+44	+18	49	1309	3
	12054	+46	+16	50	582	3
	12051	+48	−24	51	109	1
	12051	+59	−24	61	73	2
	12071	+59	−18	60	218	1

U.T.	No.	Δl	φ	ρ	A	s
		°	°	°		
	12050	+61	+23	65	32	1
	12070	+64	−16	64	48	1
	12070	+70	−20	70	121	2
	12070	+76	−19	76	48	1
	12059	+66	+26	71	194	2
	12059	+72	+26	76	242	1
	(15)	(232)	(−4)		5974	63
6.767	12076	−47	−29	52	16	2
M–2	12076	−47	−28	52	12	1
	12076	−44	−26	48	24	5
	12076	−42	−27	46	32	2
	12076	−41	−26	45	12	2
	12076	−39	−26	44	16	3
	12075	−41	−16	43	12	3
	12075	−41	−15	42	6	2
	12075	−37	−14	39	85	5
	12075	−37	−16	40	6	1
	12075	−36	−15	38	36	5
	12075	−35	−16	37	24	2
	12075	−34	−16	36	97	4
	12075	−33	−17	35	12	2
	12068	−40	−25	44	6	1
	12068	−37	−23	41	48	5
	12068	−35	−21	38	12	2
	12068	−35	−24	39	267	7
	12068	−34	−26	40	6	1
	12074	−31	−22	35	6	1
	12074	−27	−21	33	24	12
	12074	−26	−20	30	36	6
	12074	−26	−22	31	48	6
	12074	−25	−23	30	16	1
	12074	−24	−24	31	16	3
	12074	−23	−21	27	6	3
	12074	−23	−23	28	12	1
	12066	−24	−15	26	6	1
	12066	−24	−17	27	6	2
	12066	−23	−15	25	12	3
	12066	−22	−14	24	12	4
	12066	−20	−16	24	12	3
	12066	−19	−14	23	6	1
	12066	−18	−15	22	145	3
	12066	−17	−13	20	6	1
	12073	−11	+13	19	6	2
	12073	− 6	+13	17	12	1
	12064	− 6	−21	17	6	1
	12064	− 2	−22	18	6	1
	12064	+ 1	−22	17	109	1
	12065	− 2	+ 3	6	6	2
	12065	− 1	+ 3	6	12	1
	12065	+ 1	+ 3	6	12	2
	12072	+19	−17	24	12	1
	12072	+23	−15	25	12	3
	12069	+37	−25	42	16	5
	12069	+39	−25	44	6	2
	12069	+41	−25	45	6	3
	12054	+42	+16	46	133	3
	12054	+43	+17	46	16	2
	12054	+44	+16	49	97	7
	12054	+49	+19	54	145	1
	12054	+50	+17	54	242	4

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U.T.	No.	Δl	φ	ρ	A	s
		°	°	°		
	12054	+51	+20	55	24	3
	12054	+54	+18	58	776	2
	12054	+56	+16	59	24	6
	12054	+57	+15	60	315	3
	12054	+58	+17	61	16	1
	12054	+58	+15	61	24	1
	12071	+59	−24	61	61	1
	12071	+60	−23	62	6	1
	12071	+69	−23	69	24	1
	12051	+62	−18	63	32	1
	12070	+69	−16	69	97	1
	12070	+73	−16	73	24	1
	12070	+75	−16	75	36	1
	12050	+73	+24	76	24	2
	12059	+77	+26	79	48	1
	12059	+77	+27	79	97	1
	(16)	(219)	(−4)		3580	175
7.617	12075	−29	−16	33	97	4
N−2	12075	−26	−17	29	36	1
	12075	−26	−14	27	145	4
	12075	−25	−15	26	36	3
	12075	−22	−15	24	145	3
	12076	−28	−26	35	121	3
	12068	−26	−23	32	24	1
	12068	−25	−21	29	32	1
	12068	−24	−20	28	32	1
	12068	−24	−24	31	267	5
	12074	−15	−22	24	48	1
	12074	−14	−19	22	32	1
	12074	−14	−20	22	61	2
	12074	−14	−22	24	48	1
	12066	−13	−15	17	12	1
	12066	− 8	−16	15	16	1
	12066	− 7	−15	15	194	2
	12066	− 7	−13	12	16	1
	12073	+ 5	+14	19	16	1
	12065	+11	+ 4	14	16	1
	12065	+13	+ 4	15	12	1
	12064	+12	−21	20	182	1
	12069	+49	−24	52	36	1
	12069	+54	−24	56	24	1
	12054	+54	+17	57	121	1
	12054	+55	+19	59	24	1
	12054	+56	+17	59	97	2
	12054	+59	+19	63	291	2
	12054	+61	+16	64	121	2
	12054	+62	+22	66	97	1
	12054	+63	+18	66	436	2
	12054	+66	+20	69	1115	4
	12054	+69	+17	72	291	1
	12071	+71	−22	71	32	1
	12051	+76	−18	76	48	1
	12070	+80	−15	80	121	2
	(13)	(208)	(−4)		4442	62
8.603	12076	−20	−26	29	12	4
N−3	12075	−17	−16	22	97	5
	12075	−16	−15	20	16	1
	12075	−15	−15	19	73	3

U.T.	No.	Δl	φ	ρ	A	s
		°	°	°		
	12075	−14	−16	19	170	6
	12075	−13	−14	16	61	2
	12075	−10	−15	15	16	3
	12075	− 8	−14	14	36	2
	12075	− 7	−15	14	133	1
	12068	−15	−26	26	97	4
	12068	−11	−24	24	194	8
	12080	−13	−20	21	16	2
	12080	−11	−20	19	73	4
	12080	− 9	−20	18	12	1
	12074	− 4	−20	16	16	2
	12074	− 1	−19	15	61	3
	12074	− 1	−21	16	73	3
	12074	0	−22	17	24	3
	12066	+ 4	−16	14	6	1
	12066	+ 6	−15	14	170	2
	12078	+24	−12	25	36	2
	12078	+25	−11	25	48	2
	12064	+25	−21	29	194	1
	12077	+58	+29	65	24	1
	12069	+63	−24	64	16	1
	12069	+65	−24	66	12	2
	12069	+69	−24	69	16	1
	12054	+66	+18	70	48	1
	12054	+71	+19	74	242	2
	12054	+75	+19	77	291	4
	12054	+78	+16	79	36	1
	12054	+79	+20	79	970	1
	(11)	(195)	(−4)		3289	79
9.733	12076	− 4	−26	24	6	1
M−2	12076	− 1	−26	23	6	1
	12076	+ 1	−27	25	12	2
	12075	− 3	−16	13	61	1
	12075	− 2	−15	12	12	1
	12075	− 1	−16	13	32	5
	12075	0	−16	13	16	3
	12075	+ 1	−16	13	32	3
	12075	+ 1	−15	12	16	1
	12075	+ 2	−14	11	48	2
	12075	+ 3	−16	14	133	1
	12075	+ 5	−16	14	32	4
	12075	+ 6	−15	14	12	1
	12075	+ 7	−16	15	109	1
	12080	− 1	−22	17	6	3
	12080	0	−22	17	6	1
	12080	+ 3	−20	16	16	2
	12080	+ 4	−21	17	12	2
	12068	+ 3	−24	21	61	3
	12068	+ 4	−24	22	48	2
	12068	+ 6	−24	23	12	1
	12068	+ 8	−23	22	6	1
	12074	+12	−22	22	32	3
	12074	+12	−23	23	24	2
	12074	+13	−22	23	97	5
	12074	+14	−23	24	12	1
	12074	+15	−21	23	6	1
	12074	+17	−25	26	36	3
	12066	+17	−17	23	12	1
	12066	+22	−16	25	97	2
	12079	+25	−13	26	12	1

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U.T.	No.	Δl	φ	ρ	A	s
		°	°	°		
	12079	+26	−13	27	6	2
	12078	+36	−13	37	24	2
	12078	+38	−12	39	6	3
	12078	+40	−12	41	16	2
	12064	+38	−22	41	121	1
	12077	+70	+27	74	16	1
	12077	+75	+26	78	85	2
	12069	+78	−25	78	12	1
	12069	+80	−24	80	16	2
	12069	+80	−26	80	16	1
	12069	+84	−24	84	48	1
	(11)	(180)	(−4)		1388	79
10.632	12076	+ 8	−25	24	36	1
N–2	12075	+ 9	−15	15	121	3
	12075	+12	−15	16	48	2
	12075	+13	−15	17	32	1
	12075	+14	−15	18	48	2
	12075	+15	−15	19	194	2
	12075	+18	−15	22	32	2
	12075	+23	−15	25	145	4
	12068	+10	−25	24	16	1
	12068	+13	−25	25	36	1
	12068	+15	−24	25	48	2
	12068	+16	−23	25	48	1
	12068	+16	−25	26	230	4
	12068	+18	−24	26	16	1
	12068	+18	−25	27	32	1
	12080	+16	−19	23	109	1
	12074	+25	−23	30	24	1
	12074	+26	−21	31	194	3
	12066	+34	−16	36	109	1
	12073	+44	+13	47	24	1
	12078	+49	−12	49	73	1
	12078	+53	−11	53	24	1
	12064	+51	−21	53	145	1
	(9)	(168)	(−4)		1784	38
11.713	12083	−74	+14	76	291	1
N–1	12082	−53	−15	54	48	1
	12082	−49	−14	50	24	1
	12076	+18	−26	28	36	1
	12076	+21	−28	32	48	1
	12076	+22	−26	30	24	1
	12076	+24	−27	34	12	1
	12075	+24	−16	27	61	2
	12075	+25	−15	27	145	3
	12075	+26	−15	28	73	2
	12075	+28	−14	31	61	1
	12075	+30	−15	33	218	3
	12075	+37	−16	40	218	1
	12068	+26	−25	33	12	1
	12068	+29	−23	34	73	3
	12068	+30	−24	36	339	2
	12068	+34	−23	38	73	1
	12066	+49	−16	50	97	2
	(*)	+40	+20	46	73	1
	12073	+60	+13	63	97	1
	12064	+67	−21	67	170	1
	(9)	(154)	(−4)		2193	31

U.T.	No.	Δl	φ	ρ	A	s
		°	°	°		
13.610	12085	−68	−26	69	485	1
N–1	12084	−52	− 8	52	121	1
	12084	−46	− 7	46	36	1
	12083	−47	+14	51	339	1
	12082	−26	−15	29	48	1
	12082	−24	−14	26	36	1
	(*)	+31	−24	36	48	1
	12081	+40	−14	42	61	1
	12081	+43	−12	43	32	1
	12076	+46	−27	51	109	1
	12075	+55	−15	55	145	2
	12075	+59	−16	59	133	1
	12075	+62	−14	62	97	2
	12075	+66	−15	66	158	1
	12068	+59	−21	60	48	1
	(9)	(129)	(−4)		1896	17
14.599	12085	−54	−27	56	582	1
N–1	12084	−36	− 8	36	97	1
	12084	−34	− 7	34	36	1
	12084	−31	− 6	31	48	1
	12083	−33	+14	38	267	1
	12082	−13	−15	16	73	1
	12082	−10	−14	14	48	1
	12075	+66	−14	68	145	1
	12075	+75	−13	77	121	1
	12075	+79	−14	79	218	1
	(5)	(116)	(−5)		1635	10
15.721	12089	−85	+17	87	242	1
M–2	12087	−45	−21	46	16	1
	12087	−41	−21	43	12	1
	12085	−37	−27	43	436	5
	12085	−36	−29	43	12	1
	12085	−35	−26	40	6	1
	12084	−22	− 9	23	12	2
	12084	−22	−10	23	6	1
	12084	−16	− 8	16	6	1
	12084	−14	− 7	14	12	1
	12083	−17	+14	25	194	4
	12082	+ 2	−16	12	6	2
	12088	+59	−25	61	16	1
	12088	+61	−26	62	24	1
	12081	+67	−13	69	32	2
	12081	+69	−14	71	16	1
	12081	+73	−13	74	48	2
	12076	+76	−26	77	73	1
	12075	+80	−16	80	97	1
	12075	+85	−18	85	48	1
	(10)	(101)	(−5)		1314	31
16.647	12089	−74	+18	76	630	1
N–2	12085	−29	−25	35	16	1
	12085	−27	−27	35	485	3
	12085	−26	−29	35	24	3
	12086	−25	−27	34	36	2
	12086	−22	−24	28	16	1
	12084	−11	−10	12	16	1
	12084	−10	− 7	11	16	1

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U.T.	No.	Δl	φ	ρ	A	s
		°	°	°		
	12084	− 4	− 6	4	48	1
	12083	− 6	+14	21	242	2
	12081	+80	−10	80	97	1
	(6)	(89)·	(−5)		1626	17
17.803	12093	−73	+12	75	97	1
N–2	12093	−65	+13	66	121	1
	12094	−71	+17	75	12	1
	12094	−66	+17	70	12	1
	12089	−58	+18	62	558	1
	12092	−47	−13	48	73	1
	12092	−46	−13	47	97	3
	12085	−15	−25	25	24	1
	12085	−15	−27	26	194	1
	12085	−14	−29	28	48	2
	12085	−13	−27	26	509	1
	12085	− 9	−26	24	16	1
	12084	+ 5	− 9	6	16	2
	12084	+11	− 6	11	16	1
	12084	+14	− 6	14	36	1
	12083	+ 9	+14	22	242	1
	(7)	(74)	(−5)		2071	20
18.610	12095	−80	−15	80	194	1
N–2	12095	−77	−16	78	388	1
	12098	−73	+45	80	242	1
	12094	−64	+18	67	97	1
	12094	−64	+20	67	36	1
	12094	−60	+16	64	24	1
	12094	−54	+17	58	24	1
	12093	−54	+12	56	133	1
	12089	−46	+17	51	533	1
	12092	−36	−14	37	73	1
	12092	−35	−14	36	24	1
	12097	−12	+26	33	36	1
	12097	−10	+25	32	48	1
	12085	− 4	−28	24	121	1
	12085	− 2	−27	24	533	3
	12085	+ 3	−27	24	36	1
	12086	+ 2	−25	20	48	2
	12084	+17	− 8	18	16	1
	12084	+23	− 6	23	36	1
	12084	+25	− 6	25	61	1
	12083	+20	+14	28	194	1
	12091	+22	+11	26	24	1
	(12)	(63)	(−5)		2921	25
19.642	12095	−71	−16	72	170	1
N–2	12095	−69	−18	71	121	1
	12095	−66	−15	67	194	1
	12095	−65	−18	66	73	1
	12095	−61	−16	62	339	1
	12098	−60	+45	71	194	1
	12094	−49	+18	54	97	1
	12094	−44	+16	49	73	1
	12093	−48	+10	51	97	1
	12093	−46	+12	49	32	1
	12093	−43	+12	46	32	1
	12093	−43	+10	45	48	1

U.T.	No.	Δl	φ	ρ	A	s
		°	°	°		
	12093	−37	+12	42	97	2
	12089	−32	+17	39	582	1
	12092	−23	−15	25	61	2
	12092	−22	−14	24	48	1
	12097	+ 1	+26	31	36	1
	12097	+ 4	+25	30	48	1
	12085	+ 8	−26	24	48	1
	12085	+ 9	−28	26	97	2
	12085	+12	−27	26	582	4
	12085	+14	−28	27	36	1
	12096	+10	−20	18	48	1
	12096	+18	−20	24	32	1
	12083	+34	+14	39	194	1
	12084	+39	− 6	39	61	1
	(11)	(50)	(−5)		3440	32
20.674	12102	−80	+25	84	145	1
N–2	12095	−56	−16	56	242	1
	12095	−55	−17	56	97	1
	12095	−51	−15	52	121	1
	12095	−50	−17	52	48	1
	12095	−47	−16	49	218	2
	12098	−47	+45	65	48	1
	12098	−46	+46	64	73	1
	12098	−44	+44	62	24	1
	12094	−38	+19	45	16	1
	12094	−35	+20	43	61	2
	12094	−35	+22	44	48	1
	12093	−34	+12	38	61	1
	12093	−32	+12	36	36	1
	12093	−27	+13	33	48	1
	12093	−23	+13	29	61	1
	12089	−17	+18	29	582	1
	12096	+24	−18	27	16	1
	12096	+29	−19	33	12	1
	12085	+25	−28	34	291	4
	12085	+26	−26	33	339	1
	12083	+49	+15	53	121	1
	(9)	(36)	(−5)		2708	27
21.636	12103	−78	+35	81	242	1
N–2	12102	−65	+25	69	109	1
	12095	−45	−17	46	339	4
	12095	−43	−16	44	48	1
	12095	−39	−15	41	182	1
	12095	−38	−17	41	48	1
	12095	−36	−16	38	194	2
	12098	−35	+45	58	85	1
	12094	−24	+19	34	32	1
	12094	−24	+23	37	24	1
	12093	−23	+11	27	48	1
	12093	−22	+ 9	26	73	1
	12093	−21	+11	26	97	2
	12093	−16	+13	24	24	1
	12093	−10	+12	19	73	1
	12089	− 8	+20	26	24	1
	12089	− 7	+16	22	48	1
	12089	− 6	+15	21	24	1
	12089	− 5	+17	23	485	1
	12099	+18	−23	25	48	1

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U.T.	No.	Δl	φ	ρ	A	s
		°	°	°		
	12085	+36	−28	42	291	2
	12085	+37	−26	42	315	1
	12085	+39	−27	44	73	1
	12083	+60	+15	64	242	1
	(10)	(23)	(−5)		3168	30
22,677	12106	−88	−21	88	194	1
M–4	12102	−62	+24	66	32	4
	12102	−50	+24	56	97	1
	12103	−62	+34	68	145	1
	12095	−31	−16	33	73	3
	12095	−31	−18	34	12	2
	12095	−30	−19	34	6	1
	12095	−30	−17	33	133	7
	12095	−29	−18	33	6	1
	12095	−28	−16	31	24	3
	12095	−25	−16	26	121	2
	12095	−23	−17	25	12	3
	12095	−22	−16	25	36	5
	12095	−21	−16	24	97	1
	12105	−24	+25	38	12	1
	12105	−23	+25	37	12	2
	12105	−20	+24	35	6	1
	12098	−21	+45	53	24	4
	12094	− 9	+22	27	6	1
	12094	− 8	+21	26	6	2
	12094	− 7	+19	25	12	2
	12093	− 7	+11	17	16	4
	12093	− 6	+10	16	24	5
	12093	− 5	+11	16	24	10
	12093	+ 1	+10	14	6	3
	12093	+ 3	+12	16	12	5
	12093	+ 4	+12	16	61	1
	12104	− 7	−25	23	6	3
	12089	+ 5	+16	22	36	8
	12089	+ 5	+17	23	16	2
	12089	+ 6	+16	22	12	4
	12089	+ 7	+20	25	6	3
	12089	+ 8	+15	22	16	4
	12089	+ 8	+17	24	436	1
	12089	+ 9	+19	26	6	3
	12089	+10	+14	22	6	1
	12089	+11	+18	25	6	4
	12089	+11	+16	24	6	2
	12101	+ 6	−25	21	6	1
	12101	+10	−24	22	6	1
	12101	+11	−24	22	12	2
	12101	+12	−24	23	6	2
	12099	+34	−24	38	6	1
	12085	+46	−27	50	6	1
	12085	+49	−28	54	242	8
	12085	+51	−27	54	218	1
	12085	+53	−29	56	6	1
	12085	+54	−26	56	6	1
	12096	+56	−22	57	12	3
	12083	+75	+13	77	170	2
	(15)	(10)	(−5)		2457	135
23,648	12106	−75	−20	76	388	1
N–1	12103	−50	+34	61	194	1
	12102	−37	+25	47	121	1
	12098	−23	+44	53	24	1
	12095	−17	−16	22	291	4
	12095	−13	−15	16	145	1
	12095	−10	−16	16	24	1
	12095	− 8	−15	14	121	2
	12105	−13	+26	33	24	1
	12105	− 8	+26	32	48	1
	12094	+ 4	+24	29	24	1
	12093	+ 5	+12	17	36	1
	12093	+ 5	+11	16	24	1
	12093	+ 6	+11	16	24	1
	12093	+14	+11	21	121	1
	12093	+15	+14	24	24	1
	12093	+17	+12	24	291	4
	12089	+18	+ 8	23	85	2
	12089	+18	+10	24	48	1
	12089	+19	+13	26	32	1
	12089	+20	+14	27	48	1
	12089	+20	+16	29	121	2
	12089	+23	+18	32	630	2
	12089	+23	+15	29	48	2
	12089	+24	+16	32	145	3
	12101	+25	−24	31	32	1
	12085	+61	−27	62	339	3
	12085	+64	−26	65	291	1
	12085	+66	−25	67	121	1
	(11)	(357)	(−5)		3864	44
24,585	12106	−62	−20	63	170	1
N–1	12106	−60	−20	61	73	1
	12108	−40	+25	49	97	1
	12103	−40	+34	54	145	1
	12102	−25	+24	38	109	1
	12095	− 6	−15	13	12	1
	12095	− 5	−16	13	170	3
	12095	− 1	−18	14	24	3
	12095	0	−15	10	145	1
	12095	+ 2	−15	10	48	2
	12095	+ 5	−15	12	145	1
	12093	+26	+11	30	145	3
	12093	+26	+13	32	48	1
	12093	+27	+12	32	48	1
	12093	+30	+11	34	291	2
	12089	+31	+21	39	48	2
	12089	+32	+14	37	97	1
	12089	+34	+17	41	727	4
	12089	+36	+16	41	242	3
	12101	+36	−22	39	32	1
	12101	+37	−24	42	32	1
	12085	+74	−25	76	145	1
	12085	+75	−26	77	194	1
	12085	+78	−25	79	291	1
	(9)	(344)	(−5)		3478	38
25,676	12111	−57	−19	58	12	1
M–2	12110	−54	+16	59	48	1
	12106	−49	−22	51	145	2
	12106	−47	−21	49	12	1
	12106	−47	−23	50	16	2

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U.T.	No.	Δl	φ	ρ	A	s
		°	°	°		
	12109	−45	+17	51	16	2
	12109	−44	+16	50	16	6
	12109	−42	+15	46	16	3
	12108	−27	+25	42	32	3
	12108	−24	+24	39	36	2
	12103	−25	+34	48	145	1
	12102	−11	+23	31	121	2
	12102	− 7	+23	30	12	2
	12095	+ 6	−19	15	85	8
	12095	+ 6	−20	15	16	2
	12095	+ 7	−17	14	61	3
	12095	+10	−16	14	6	1
	12095	+14	−19	19	12	2
	12095	+15	−16	18	97	1
	12095	+15	−18	19	24	5
	12095	+17	−17	21	121	1
	12098	+11	+44	52	16	1
	12093	+34	+ 9	38	12	6
	12093	+39	+ 9	44	24	4
	12093	+41	+11	45	32	4
	12093	+41	+ 9	44	36	3
	12093	+43	+ 9	46	32	2
	12093	+44	+ 7	47	16	3
	12093	+46	+ 9	50	339	2
	12089	+44	+16	50	61	9
	12089	+45	+20	53	16	5
	12089	+46	+15	51	145	4
	12089	+46	+13	51	291	5
	12089	+48	+16	54	533	1
	12089	+51	+15	56	242	7
	12101	+50	−24	53	16	4
	12101	+54	−26	55	73	3
	12099	+64	−23	65	12	1
	12107	+80	−20	80	48	1
	12107	+80	−18	80	24	1
	(14)	(330)	(−6)		3017	117
26.617 N–3	12111	−45	−17	45	36	1
	12111	−44	−15	45	6	1
	12111	−42	−15	43	12	1
	12106	−36	−19	37	170	1
	12109	−32	+18	41	6	1
	12109	−32	+19	42	36	2
	12109	−29	+17	38	61	4
	12109	−26	+16	35	36	3
	12108	−15	+26	36	12	1
	12108	−14	+25	35	6	1
	12108	−13	+25	34	12	2
	12108	−10	+25	33	85	4
	12103	−11	+34	42	145	1
	12102	+ 2	+24	31	109	1
	12095	+19	−16	23	6	1
	12095	+19	−18	24	73	5
	12095	+21	−17	24	109	3
	12095	+22	−20	25	12	2
	12095	+22	−18	25	12	1
	12095	+26	−18	28	12	1
	12095	+27	−16	28	109	1
	12095	+27	−20	30	6	1
	12095	+28	−17	31	24	1
	12095	+30	−16	32	170	1
	(*)	+30	+26	44	24	2
	12093	+53	+10	56	61	3
	12093	+54	+10	57	12	1
	12093	+54	+ 8	57	12	1
	12093	+59	+ 9	62	436	1
	12089	+56	+18	63	121	1
	12089	+58	+15	63	291	3
	12089	+59	+14	64	291	6
	12089	+60	+16	66	630	1
	12089	+62	+14	67	582	6
	12101	+65	−26	66	73	2
	(11)	(318)	(−6)		3798	68
30.785 N–2	12119	−70	−18	70	291	1
	12116	−48	+16	54	73	1
	12114	−14	+16	26	73	3
	12114	−11	+15	24	24	2
	12114	− 6	+15	23	48	3
	12114	− 5	+14	22	145	2
	12106	+20	−22	25	158	1
	12103	+40	+33	55	97	1
	12102	+55	+22	62	121	1
	(6)	(263)	(−6)		1030	15
31.690 M–2	12120	−65	+18	70	73	1
	12120	−60	+17	65	109	2
	12119	−59	−15	60	6	1
	12119	−57	−18	59	12	1
	12119	−56	−20	57	267	2
	12117	−52	−25	54	16	1
	12118	−51	−15	52	6	1
	12116	−36	+15	42	12	1
	12114	− 3	+15	22	36	4
	12114	− 1	+15	22	16	2
	12114	+ 2	+12	17	12	1
	12114	+ 5	+14	21	12	1
	12114	+ 6	+13	20	12	2
	12114	+ 8	+13	21	97	2
	12114	+10	+15	24	6	1
	12114	+14	+14	24	6	1
	12115	− 2	−19	15	12	3
	12113	+11	+21	28	6	2
	12106	+31	−22	34	145	1
	12103	+50	+34	64	61	1
	12112	+60	+19	67	6	1
	12112	+63	+18	69	16	1
	12112	+66	+18	71	24	3
	12102	+68	+23	74	48	2
	(12)	(252)	(−6)		1016	38

Mean for 27 days, $A = 2971$, $r = 158.7$

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